

REMARKS

Claims 1-50 were pending when last examined. With this amendment, Applicants amend Claims 1, 19, 22, 23, 32, 35, 42, 47, and 50. All pending claims are shown in the detailed listing above.

Claim Objections

Claims 19 and 22 are objected to because of minor informalities. In response, Applicants have amended these claims pursuant to the Examiner's helpful suggestions. As such, the Applicants respectfully request that the objection to Claims 19 and 22 be withdrawn.

Claim Rejections - 35 USC § 102

Claims 35-38 and 42-44 are rejected under 35 U.S.C. § 102(e) as being anticipated by USPN 6,049,229 issued to Manohar et al. (hereinafter "Manohar I"). Applicants respectfully traverse.

Claim 35 as amended recites in pertinent part, "a pre-amplifier operable to receive a symbol stream and generate a differential output, wherein the symbol stream comprises a plurality of symbols with each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data." Such element is not disclosed or taught in Manohar I.

Manohar I discloses several types of encoding including non-return-to-zero (NRZ), NRZ-invert-on-ones (NRZI), binary, and multi-level transitions (MLT). None of these encoding schemes use "a plurality of symbols with each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data." With NRZ encoding, data is defined only by signal level (either high or low); transitions from one signal level to another are irrelevant. With NRZI and binary encoding, data is defined exclusively by transitions (from high-to-low or low-to-high). In these two

types of encoding, signal region is not taken into account. Furthermore, none of the NRZ, NRZI, and binary encoding use symbols wherein “each symbol representing a plurality of data” as required by Claim 35.

Nor does the MLT encoding disclosed in Manohar I use such symbols. With the MLT encoding, multiple levels are provided, but these levels do not constitute signal regions which are used to define (at least in part) a symbol. Rather, the levels in the MLT encoding are somewhat arbitrary. There is movement from a level of 0V to a level of 0.8V upon a first occurrence of a “1,” followed by movement from the 0.8V level to a level of 1.6V upon a next occurrence of a “1.” Thereafter, movement goes in the opposite direction—from 1.6V level to 0.8V level, and then from 0.8V level to 0V level—upon the occurrences of the next two “1”s. Furthermore, with the MLT encoding, no level or movement from one level to another is associated with a plurality of data. As such, the MLT encoding does not use “a plurality of symbols with each symbol uniquely defined by a signal transition and a signal region in a carrier signal, nor does the MLT encoding have symbols, with “each symbol representing a plurality of data.”

As such, Manohar I does not disclose or suggest a “symbol stream [which] comprises a plurality of symbols with each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data,” as recited in Applicants’ Claim 35. Thus, Manohar I does not anticipate Claim 35.

Similar to Claim 35, Claim 42 as amended recites in pertinent part, “receiving a symbol stream and generating a differential output, wherein the symbol stream comprises a plurality of symbols with each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data.” This step of Claim 42 is not disclosed or taught by Manohar I either. Thus, Manohar I does not anticipate Claim 42.

For at least the reasons discussed above, Applicants respectfully request that the rejection of Claims 35 and 42 under 35 U.S.C. § 102(e) be withdrawn and these claims be

allowed. Furthermore, because each of Claims 36-38, 43, and 44 depend from Claim 35 or 42 and include further limitations, Applicants respectfully request that the rejection of these dependent claims under 35 U.S.C. § 102(e) also be withdrawn and the claims be allowed.

Claim Rejections - 35 USC § 103

Claims 1-9 and 23-27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over USPN 5,917,340 to Manohar et al. (hereinafter “Manohar II”). Applicants respectfully traverse.

Claim 1 as amended recites in pertinent part, “a multi-symbol encoder circuit operable to encode data into a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data.” Nowhere in Manohar II is such an element disclosed, taught, or suggested.

Like Manohar I discussed above, Manohar II discloses several types of encoding including non-return-to-zero (NRZ), NRZ-invert-on-ones (NRZI), binary, and multi-level transitions (MLT). None of these encoding schemes use “a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data,” as previously discussed.

According to the Examiner, “[Manohar II] discloses an apparatus (Figs. 2, 4, and 6) for providing symbol signaling comprising: a symbol encoder circuit (Figs. 2 and 4, column 2, line 41 –column 3, and column 7, lines 19-49) operable to encode data into symbols, each symbol uniquely defined by a signal transition (column 7, lines 18-24) and a signal region (Table 1, voltage levels (low, mid, high)) in a carrier signal....” Applicants respectfully disagree.

The portion of Manohar II cited by the Examiner for disclosing “operable to encode data into symbols, each symbol uniquely defined by a signal transition” merely describes a conversion from binary encoding to MLT encoding. As already discussed, neither binary encoding nor MLT encoding use “a plurality of symbols, each symbol uniquely defined by a

signal transition and a signal region in a carrier signal, each symbol representing a plurality of data.” And the portion of Manohar II cited by the Examiner for disclosing “a signal region” merely describes the different voltage levels used in MLT encoding. Although MLT encoding uses multiple voltage levels and movement between levels, there is simply no association between the levels and the movement for uniquely defining any symbols. Furthermore, in the MLT encoding, none of the multiple voltage levels or movement between levels represents a plurality of data. Nor is there any teaching or suggestion in Manohar II for doing so. As such, Manohar II does not render obvious Claim 1.

Claim 23 as amended recites in pertinent part, “encoding the data into a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data.” Manohar II does not disclose, teach, or suggest such limitation, as should be readily apparent from the previous discussion. Accordingly, Manohar II does not render obvious Claim 23.

For at least the reasons discussed above, Applicants respectfully request that the rejection of Claims 1 and 23 under 35 U.S.C. § 103(a) be withdrawn and these claims be allowed. Furthermore, because each of Claims 2-9 and 24-27 depend from Claim 1 or 23 and include further limitations, Applicants respectfully request that the rejection of these dependent claims under 35 U.S.C. 103(a) also be withdrawn and the claims be allowed.

Claims 12-17, 20, 28-34, 39 and 47-50 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Manohar I. Applicants respectfully traverse.

Claim 12 recites in pertinent part, “a pre-amplifier operable to receive a carrier signal conveying a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in the carrier signal, each symbol representing a plurality of data.” Similarly, Claim 28 recites in pertinent part, “receiving a carrier signal conveying a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in the carrier signal, each symbol representing a plurality of data.” And Claim 32 as amended recites in pertinent part, “a multi-symbol transmitter operable to encode a first sequence of

data into a first plurality of symbols, each symbol uniquely defined by a signal transition and a signal region, each symbol representing a plurality of data.” Claim 47 as amended recites in pertinent part, “a transmitter circuit integral to a first monolithic semiconductor device, the transmitter circuit operable to encode a sequence of data into a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region, each symbol representing a plurality of data.” Such limitations are not disclosed, taught, or suggested in the Manohar I, as should be readily apparent from the discussion above. Accordingly, the cited reference does not render obvious Claims 12, 28, 32, and 47.

For at least the reasons discussed above, Applicants respectfully request that the rejection of Claims 12, 28, 32, and 47 under 35 U.S.C. § 103(a) be withdrawn and these claims be allowed. Furthermore, because each of Claims 13-17, 20, 29-31, 33, 34, and 48-50 depend from one of Claims 12, 28, 32, and 47 and include further limitations, Applicants respectfully request that the rejection of these dependent claims under 35 U.S.C. 103(a) also be withdrawn and the claims be allowed.

Claim 39 depends from Claim 35, which as discussed above should be allowable over the cited art. Furthermore, Claim 39 includes additional limitations. For at least these reasons, Applicants respectfully request that the rejection of Claim 39 under 35 U.S.C. § 103(a) be withdrawn and this claim be allowed.

Claims 10 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Manohar II in view of USPN 6,545,514 issued to Barrow (hereinafter “Barrow”). Applicants respectfully traverse.

Claims 10 and 11 depend from Claim 1, and as such, includes the element of “a multi-symbol encoder circuit operable to encode data into a plurality of symbols, each symbol uniquely defined by a signal transition and a signal region in a carrier signal, each symbol representing a plurality of data.” As discussed above with reference to Claim 1, Manohar II does not disclose, teach, or suggest such element. Furthermore, Barrow does not disclose, teach, or suggest such element. Accordingly, the cited references do not render

obvious Claims 10 and 11. For at least these reasons, Applicants respectfully request that the rejection of Claims 10 and 11 under 35 U.S.C. § 103(a) be withdrawn and these claims be allowed.

Allowable Subject Matter

Claims 18, 19, 21, 22, 40, 41, 45, and 46 are objected to, but the Examiner has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants appreciate the Examiner's indication of allowability. Nonetheless, each of Claims 18, 19, 21, 22, 40, 41, 45, and 46 depends from a base claim that should be allowable for the reasons discussed above. Accordingly, Applicants respectfully request that the objection to these claims be withdrawn.

CONCLUSION

Applicants respectfully request that the pending claims be allowed and the case passed to issue. Should the Examiner wish to discuss the Application, it is requested that the Examiner contact the undersigned at (415) 772-1200.

EXPRESS MAIL LABEL NO.:

Respectfully submitted,

EV 305 258 421 US

By:



Philip W. Woo
Attorney of Record
Registration No. 39,880
PWW/rp

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SIDLEY AUSTIN BROWN & WOOD LLP
555 California Street, Suite 5000
San Francisco, CA 94104-1715
(415) 772-7200